

THE
National Academy of Sciences, India

THIRTY-NINTH ANNUAL SESSION

ROORKEE, March, 6, 7, and 8, 1970



SECRETARIES REPORT

By

PROF. S. P. TANDON, M.Sc., D.Phil., F.N.A.Sc.

**NATIONAL ACADEMY OF SCIENCES
LAJPATRAI ROAD
ALLAHABAD
1970**

SECRETARIES' REPORT

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We have pleasure in submitting the following report on the working of the Academy during the period 1st January to 31st December, 1969.

MEMBERS

The Academy had on its rolls 715 members in good standing, of whom 169 are Fellows.

The following new members have been elected during the year and we take the opportunity to welcome them :

1. Shri B. S. Pandey, M.A., Lecturer in Maths., Govt. Engineering College, Ujjain (U.P.).
2. Shri P. S. Rao, M.A., Lecturer in Maths., Osmania University, Hyderabad.
3. Dr. Iland D. Peters., A.B., M.S., Associate Prof. & Associate Chairman, Deptt. of Mathematics, West Virginia University, Deptt. of Mathematics, Morgantown, West Virginia, U.S.A.
4. Dr. Ronson, J. Warne, Prof. of Mathematics, West Virginia University, Deptt. of Mathematics, Morgantown, West Virginia, U.S.A.
5. Shri J. P. Sharma, M.Sc., Research Scholar, Deptt. of Maths., University of Allahabad, Allahabad.
6. Shri Janki Lal Shreemali, M.Sc., Research Scholar, Botany Deptt., University of Jodhpur, Jodhpur.
7. Shri C. S. Gehlot, M.Sc., Research Scholar, Botany Deptt., University of Jodhpur, Jodhpur.
8. Dr. D. K. Murty, M.Sc., Ph.D., Astd. Prof. of Chemistry, College of Military Engineering, Dapodi, Poona-12.
9. Dr. S. N. Prasad, M.Sc., Ph.D., Reader in Mathematics, Bhagalpur University, Bhagalpur.
10. Shri S. G. Ghangrekar, M.Sc., Associate Lecturer in Maths., Visvesvaraya Regional College of Engineering, Nagpur.
11. Shri A. R. Sapre, M.Sc., Lecturer, Girls Junior College, Jhabua, Jhabua (M.P.).
12. Dr. M. P. Jamuar, M.Sc., Ph.D., Research Associate, Medical Research Centre Brookhavan, National Laboratory Upton, L.T. New York 11973 (U.S.A.).
13. Dr. A. B. Prasad, M.Sc., Ph.D., Lecturer in Botany, Deptt. of Botany, University of Bihar, L. S. College, Muzaffarpur (Bihar).
14. Shri G. D. Verma, M.Sc., Research Scholar, Deptt. of Zoology, University of Bihar, L. S. College, Muzaffarpur (Bihar).
15. Dr. Rajendra Gupta, M.Sc., Ph.D., Lecturer, Deptt. of Maths., University of Allahabad, Allahabad.
16. Dr. V. K. Gupta, M.Sc., Ph.D., Research Fellow, Deptt. of Physics, Sagar University, Sagar (M.P.).

17. Shri R. K. Daradhiyar, M.Sc., Lecturer in Botany, H. D. Jain College (Magadh University) Arrah (Bihar).
18. Shri S. C. Jaish, M.Sc., Lecturer, Model Junior College, T. T. Nagar, Bhopal (M.P.).
19. Dr. Amar Nath Singh, M.Sc., Ph.D., Lecturer, Deptt. of Physics, Magadh University, Gaya (Bihar).
20. Dr. S. P. Jain, M.Sc., Ph.D., Lecturer, Deptt. of Zoology, Agra College, Agra.
21. Dr. K. P. Tiwari, M.Sc., D.Phil., Lecturer, Deptt. of Chemistry, University of Allahabad, Allahabad.
22. Dr. S. N. Sinha, M.Sc., D.Phil., D.Sc., Deptt. of Chemistry, University of Allahabad, Allahabad.
23. Shri D. K. Patwardhan, M.Sc., Lecturer in Engineering Mathematics S. V. Regional College of Engineering and Technology, Surat-1.
24. Dr. K. C. Tripathi, M.Sc., Fil.Lic (Ph.D.), Assistant, Deptt. of Physics, Chalmers University of Technology, Gotebory, Sweden.
25. Dr. Vivekananda Banerjee, M.Sc., Dr.rer.nat. (Heidelberg), Lecturer in Zoology, Science College, Patna-5.
26. Shri S. C. Prasad, M.Sc., Research Scholar, Deptt. of Maths., B.I.T., Mesra, P. O. Mesra, Ranchi.
27. Shri S. P. Goyal, M.Sc., Research Scholar, Deptt. of Mathematics, M. R. Engineering College, Jaipur-4.
28. Shri D. C. Pal, M.Sc., Scientific Assistant, Central Botanical Laboratory, B.S.I., 76, J. C. Bose Road, Calcutta-14.
29. Shri Sukhendu Dey, M.Sc., Asstt. Prof. in Mathematics, B.I.T., Mesra, Ranchi.
30. Dr. R. S. Tewari M.Sc., Ph.D., Lecturer, Deptt. of Chemistry, Harcourt Butler Technological Institute, Kanpur-2.
31. Shri S. R. Patel M.Sc., Research Scholar, Deptt. of Applied Mathematics, Govt. Engineering College, Jabalpur.
32. Shri R. M. Acharya, M.Sc., Lecturer in Botany, J.B. College of Science, Wardha (Maharashtra).
33. Shri R. P. Suri, M.Sc., Lecturer in Chemistry, Oriental College, Imphal (Manipur).
34. Shri V. L. Deshpande, M.Sc., Lecturer in Mathematics, Pratap College, Amalner (Jalgaon).
35. Shri R. K. Jain, M.Sc., Lecturer, Deptt. of Mathematics, Birla Institute of Technology and Science, Pilani (Rajasthan).
36. Shri Peerzada Saeed Husain Khan, M.Sc., Senior Scientific Assistant, National Botanical Gardens, Lucknow.
37. Dr. M. P. Gupta, M.Sc., Ph.D., Professor and Head of the Deptt. of Physics, University of Ranchi, Ranchi-8.
38. Dr. Radhey Mohan Misra, Lecturer in Physics, Department of Physics, University of Gorakhpur, Gorakhpur.
39. Dr. S. N. Tewari, M.Sc., D.Phil., Chemical Examiner to the Govt. of Uttar Pradesh and Madhya Pradesh, Agra.
40. Dr. P. S. Pathak, M.Sc., Ph.D., Lecturer in Botany, Deptt. of Botany, Agra College, Agra-2.
41. Dr. S. C. Kushwaha, M.Sc., Ph.D., Post Doctoral Fellowship, University of Wisconsin, Madison, U.S.A.
42. Shri B. Y. Khoche, M.Sc., Asstt. Professor, Government College, Seoni (M.P.).

43. Dr. R. D. Upadhyaya, M.A., Ph.D., Professor and Head of the Mathematics Department, Govt. Degree College, P. O. Gopeshwar, Dist. Chamoli (U.P.).
44. Shri A. K. Chakravarty, M.Sc., Agrostologist, Central Arid Zone Research Institute, Jodhpur (Rajasthan).
45. Dr. M. M. Laloraya, M.Sc., D.Phil., Lecturer, Deptt. of Botany, University of Allahabad, Allahabad.
46. Dr. N. N. Sharma, M.Sc., D.Phil., Scientist, Central Salt and Marine Chemicals Research Institute, Bhavanagar-2.
47. Dr. P. K. Sinha, M.Sc., Dr.rer.nat (Hamburg), Gytogeneticist, Agricultural Research Institute, P. O. Kanke, Ranchi.
48. Shri Narendra Kumar Singh, M.Sc., Lecturer in Botany, Ranchi College, Ranchi (Bihar).
49. Shri Ghaman Lal Kaul, M.A., Associate Lecturer, Deptt. of Mathematics, M. R. Engineering College, Jaipur.
50. Dr. Vijay Kumar, M.Sc., Ph.D., Assistant Professor, Deptt. of Physics, Nagarjunasagar Engineering College, Hyderabad-28.
51. Dr. M. K. Saxena, M.Sc., Ph.D., Lecturer in Physics, M. M. M. Engineering College, Gorakhpur.
52. Dr. Bhagwan Swaroop, M.Sc., Ph.D., Research Scholar, Deptt. of Chemistry, Lucknow University, Lucknow.
53. Dr. K. C. Sahu, D.Sc., Professor and Head of the Post-Graduate Deptt. of Skin, V. D. and Leprosy S. C. B. Medical College and Hospital, Cuttack-7.
54. Km. Uma Singh, M.Sc., Research Scholar, Zoology Deptt., Govt. Arts and Science College, Durg (M.P.).
55. Shri R. P. Agarwal, M.Sc., Lecturer, Deptt. of Botany, Chandradhari Mithila College, P. O. Darbhanga (Bihar).
56. Dr. H. N. Bhargava, M.Sc., Ph.D., Reader in Zoology and Head of the Deptt. of Zoology, University of Saugar, Saugar (M.P.).
57. Shri V. D. Srivastava, M.Sc., Research Scholar C/o Dr. M. B. Lal, Head of the Zoology Deptt., D. A. V. College, Dehradun.
58. Shri Keshav Datt, Sharma, M.Sc., Lecturer, Department of Mathematics, Government College, Churu (Rajasthan).
59. Shri Baburao Govindrao Pachpatte, M.Sc., Lecturer, Deogiri College, Aurangabad (Maharashtra).
60. Dr. George Thottaphilly, B.Sc., (Agri.) Dipl. Agr., Dr. Agr. Scientific Co-worker of the University of Giessen, 63, Giessen, Tropical Institute, Schottstr. 2, West Germany.
61. Dr. G. P. Ghosh, M.Sc., Ph.D., Lecturer, Sheila Dhar Institute of Soil Science, University of Allahabad, Allahabad.

FELLOWS

We are happy to announce the election of the following members of Fellows of the Academy during the year 1969.

1. Shri A. K. Chakravarty, M.Sc., Agrostologist, Central Arid Zone Research Institute, Jodhpur (Rajasthan).
2. Dr. H. M. Srivastava, M.Sc., Ph.D., F.R.A.S., Professor of Mathematics, University of Victoria, British Columbia, Canada.
3. Dr. G. P. Agaiwal, D.Phil., Head of the Botany Deptt., Jabalpur University, Jabalpur (M.P.).

4. Dr. S. K. De, D.Phil., D.Sc., F.I.C.S., Lecturer, Allahabad University, Allahabad.
5. Dr. M. M. Laloraya, D.Phil., Lecturer, Botany Deptt., Allahabad University, Allahabad.
6. Dr. Rameshwar Prasad, D.Phil., D.Sc., Reader, Chemistry Deptt., Patna University, Patna.
7. Prof. K. M. Saksena, Ph.D., Head, Mathematics Deptt. and Dean Faculty of Science, Ranchi University, Ranchi.
8. Prof. I. P. Varshney, Ph.D., D.Sc., Head of the Deptt. of Chemistry, G. S. Institute of Technology, Indore (M.P.).
9. Prof. M. P. Gupta, Ph.D., (Lond.) University Professor of Physics, University of Ranchi, Ranchi-8.
10. Prof. B. R. Bhonsle, Ph.D., D.Sc., Head of the Deptt. of Applied Mathematics, Govt. College, Jabalpur.

OBITUARY

The Academy condoled the sad and untimely demise of the following Honorary Fellows, Fellows and Members of the Academy during the year 1969:

1. Dr. S. Sampurnanand, Hon. Fellow.
2. Prof. P. S. MacMohan, Fellow and Founder member.
3. Lord Hailey, Patron of the Academy.
4. Prof. Shri Ranjan Past President and Fellow.
5. Dr. D. N. Wadia, Fellow and Life member.
6. Dr. J. H. Mitter, Foundation member.
7. Shri P. K. Dey, Fellow and life member.

MEETINGS

During the year under review, nine meetings each of the Council, and the General Body and two meetings of the Fellows were held. Besides transaction of business, papers were read and discussed at the ordinary meetings.

THIRTY-EIGHTH ANNUAL SESSION

The thirty-eighth Annual Session of the Academy was held at Ranchi from March, 17 to 19, 1969 at the invitation of the Ranchi University. A large number of delegates attended the session. Dr. R. K. Saksena, President of the Academy, presided over the Annual meeting of the first day of the Session. In his learned Presidential Address, on 'Mycology in India' he gave an interesting account of fungi.

Prof. A. F. Markham, Vice-Chancellor of the Ranchi University and Chairman of the Reception Committee, welcomed the guests. The session was inaugurated by Dr. A. C. Joshi, Vice-Chancellor, Banaras Hindu University.

Prof. P. L. Bhatnagar of Indian Institute of Science, Bangalore, presided over the Physical Sciences Section while Prof. U. S. Srivastava of Bihar University, Muzaffarpur, presided over the Biological Sciences. Nearly 250 papers were presented in the Biological Section and in the Physical Sciences Section.

Popular lectures were delivered by Dr. A. Lahiri, Director, Central Fuel Research Institute, Dhanbad, Dr. K. K. Majumdar, Bhabha Atomic Research Centre, Bombay and Prof. N. R. Dhar, Director, Sheila Dhar Institute of Soil Science, University of Allahabad. Besides, the Academic Programme, there were a number of social functions and excursions. The Academy expresses its thanks to the authorities of Ranchi University and to the members of the Reception Committee for inviting the 38th Annual Session and extending their co-operation in making the session a success. We are also thankful to the Vice-Chancellor, Ranchi University and the Principal, Ranchi College, Ranchi, for their hospitality.

The Academy is grateful to Prof. A. F. Markham, the Vice-Chancellor, Prof. K. M. Saxena and Prof. B. P. Gyani, local secretaries and other authorities of the University and the Reception Committee.

COUNCIL

The following constituted the Council of the Academy during 1969.

President

1. Dr. A. C. Chatterji, D.Sc., Dr.Ing., F.N.A.Sc., Ex-Vice-Chancellor, Gorakhpur University, C/o Department of Chemistry, University of Lucknow, Lucknow.

Vice-Presidents

2. Prof. P. L. Srivastava, M.A., D.Phil., F.N.I., F.N.A.Sc., Ex-Vice-Chancellor, Bihar University, 7, Lajpatrai Road, Allahabad.
3. Prof. R. S. Mishra, M.Sc., Ph.D., D.Sc., F.N.I., F.N.A.Sc., Head of the Department of Mathematics, Banaras Hindu University, Varanasi-5.

Honorary Treasurer

4. Prof. M. D. L. Srivastava, D.Sc., F.N.A.Sc., U.G.C. Retired Prof. of Zoology Department, University of Allahabad, Allahabad.

Foreign Secretary

5. Prof. N. R. Dhar, D.Sc., F.R.I.C., F.N.I., F.N.A.Sc., I.E.S. (Retd.), Foreign Associate Member of French Academy of Agriculture and Corresponding Member of French Academy of Science, Director, Sheila Dhar Institute of Soil Science, University of Allahabad, Allahabad.

General Secretaries

6. Prof. S. P. Tandon, M.Sc., D.Phil., F.N.A.Sc., Head of the Chemistry Department, University of Allahabad, Allahabad.
7. Prof. J. J. Chinoy, M.Sc., Ph.D., D.I.C., F.N.A.Sc., Head of the Department of Botany, Gujarat University, Ahmedabad.

Members

8. Dr. S. Ranjan, M.Sc., D.Sc., F.N.I., F.A.Sc., F.N.A.Sc., Vice-Chancellor, Agra University, Agra.
9. Prof. R. N. Tandon, M.Sc., Ph.D., D.I.C., F.A.Sc., F.N.I., F.N.A.Sc., Retd. Professor of Botany, Botany Department, University of Allahabad, Allahabad.

10. Prof. S. N. Ghosh, D.Sc., F.N.A.Sc., F.N.I., J. K. Institute of Applied Physics, University of Allahabad, Allahabad.
11. Dr. G. S. Sidhu, M.Sc., Ph.D., F.N.A.Sc., Director, Regional Research Laboratory, Hyderabad-9.
12. Dr. R. S. Kushwaha, M.Sc., D.Phil., Ph.D., F.N.A.Sc., Head of the Department of Mathematics, University of Jodhpur, Jodhpur.
13. Dr. U. S. Srivastava, M.Sc., M.Ed., D.Phil., F.N.A.Sc., Professor of Zoology, University of Bihar, Muzaffarpur.
14. Dr. Arun K. Dey, M.Sc., D.Phil., D.Sc., F.N.A.Sc., Department of Chemistry, University of Allahabad, Allahabad.
15. Dr. R. D. Tiwari, M.Sc., D.Phil., F.N.A.Sc., Professor of Chemistry, University of Allahabad, Allahabad.
16. Prof. Krishnaji, M.Sc., F.N.A.Sc., Department of Physics, University of Allahabad, Allahabad.

REPRESENTATIONS ON OTHER ORGANISATIONS

The Academy was represented by the following members on other organizations and learned bodies :

1. Prof. N. R. Dhar, D.Sc., F.N.I., F.R.I.C., F.N.A.Sc., I.E.S. (Retd.), Member of the Indian National Commission for Co-operation with UNESCO.
2. Prof. R. S. Mishra, M.Sc., Ph.D., D.Sc., F.N.I., F.N.A.Sc., Additional Member, Council of the National Institute of Sciences of India, New Delhi.
3. Prof. S. P. Tandon, M.Sc., D.Phil., F.N.A.Sc., a representative of the Academy on the Court of Lucknow University.

FINANCES

The financial position of the Academy is given in the Financial Statement for 1968-69 for the year ending 31st March, 1969.

The Academy is thankful to the following for the financial assistance received from them :

1. The Government of India.
2. The Government of Uttar Pradesh.
3. The University of Allahabad.
4. The National Institute of Sciences of India, New Delhi.
5. The State Council of Scientific and Industrial Research, U. P.

The Academy is grateful to the Indian Council of Agricultural Research for the grant of a sum of Rs. 3,500 for printing of International Symposium on Soil Fertility held at Banaras Hindu University, in 1967 and organised by Prof. N. R. Dhar.

The Academy continues to work under great financial difficulties. The publication section and the library require to be streamlined. More staff and administrative officers are needed but nothing is possible without adequate funds. The Academy looks forward for additional grant from all the existing Governmental authorities, Universities and other Academic bodies.

PUBLICATIONS

The publication of the Proceedings is somewhat in arrears, in spite of our efforts to bring it up to date. Seven parts of section A and seven parts of section B of the proceedings were published in the calendar year.

LIBRARY

The re-organization of the library is in progress and we have been able to regularise the exchange of publications to some extent. Much has yet to be done in this direction, new exchange relationships have to be established and journals not available in exchange have to be subscribed. We are trying our best, but are handicapped for want of funds.

✓ AWARD OF U. P. GOVERNMENT EDUCATION MINISTER'S GOLD MEDAL

We have great pleasure in announcing that the Uttar Pradesh Government Education Minister's Gold Medal for 1968 for the best research papers published in our proceedings has been awarded to--

Dr. R. N. Lal, Deptt. of Mathematics, University of Bhagalpur, Bhagalpur in 'Mathematics and Astronomy'.

GENERAL OBSERVATIONS

The Academy, which was established about forty years ago, is the oldest Scientific Academy in this country. It has on its rolls representatives from every part of the country and from various disciplines of scientific activity. Many foreign scientists and some of our statesmen are associated with us as honorary Fellows of the Academy. The Academy has always welcomed scientific workers to join the membership. We seek the co-operation of all those interested in science to join hands with us for the scientific advancement of the country. The Academy has been functioning for the last forty years and now needs re-organization in the context of the importance of scientific academies for a proper scientific atmosphere and for the national development. It is hoped that both the Uttar Pradesh and the Union Government will increase their grants which at present have become alarmingly inadequate owing to rising prices and our expanding needs.

ACKNOWLEDGEMENTS

We have great pleasure in recording our thanks and appreciation for the ungrudging help and co-operation which we have received in full measure from the referees of papers, the scrutineers of voting papers, the Members of the Academy and the printing presses. We also acknowledge the zeal of the two Officers-on-Special Duty, who are voluntarily working without any honorarium. Lastly, our thanks are due to the staff for their untiring work and devotion to duty.

FINANCIAL STATEMENT FOR 1968-69

RECEIPTS			PAYMENTS		
		Rs.			Rs.
<i>Opening balances</i>					
Cash at Bank	1,810.04	1,810.04	Establishment	...	6,104.23
Cash in hand	Nil		Dearness Allowance etc.	...	4,787.29
			Provident Fund	...	477.08
<i>Grants</i>			Postage	...	2,252.05
Recurring maintenance grant from Govt. Uttar Pradesh	...	6,000.00	Printing and Stationery	...	607.58
Grant from Allahabad University	...	1,000.00	Miscellaneous Expenditure	...	413.80
Grant from the National Institute of Sciences of India, New Delhi	...	4,000.00	Bicycle Repairs	...	35.85
Publication grant from the Govt. of India, New Delhi	...	10,000.00	Electric charges	...	110.16
Subscription from the members	...	4,129.13	Telephone charges	...	300.00
Sale of Proceedings	...	3,858.34	House and Water Taxes	...	189.00
Cost of Reprints	...	247.98	Revenue Stamps	...	17.70
Bank Commission	...	24.25	Annual Session expenses	...	255.25
Provident Fund Contribution by the staff	...	221.04	Repairs of Machine	...	3.60
Loan realised in respect of Provident Fund Money	...	35.00	Bank charges	...	82.75
Fine	...	3.00	Audit Fees	...	75.00
Loan from Reserve Fund	...	7,949.06	Advertisement charges	...	208.56
Transfer from Provident Fund account	...	3,714.00	Cost of livery to peons	...	180.47
			Maintenance of garden	...	47.00
			Provident Fund	...	3,714.00
			<i>Cost of Publication</i>		
			Mission Press	Nil	
			Capital Press	14,022.87	
			Cost of printing paper	2,414.72	
			Cost of other paper	163.60	16,601.19
			<i>Closing Balance</i>		6,529.28
			Cash at Bank	6,482.95	
			Cash in hand	46.33	
GRAND TOTAL		42,991.84	GRAND TOTAL		42,991.84

Note : The Reserve Fund a/c has been depleted from Rs. 20,184.99 to Rs. 16,404.97.

Examined with the books and vouchers, certified correct, to of our knowledge, information and belief, according to the books and produced before us during the course of audit.

(Sd.) ILLEGIBLE
for G. P. JAISWAL & Co.
Chartered Accountants.